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HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER	
MARTIN, LAURA E	

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/825,736
Filing Date: April 15, 2004
Appellant(s): BRUINSMA ET AL.

Gary P. Oakeson
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 19 August 2008 appealing from the Office action mailed 6 March 2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of the claim is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US 6328413 B1	Rutland	12-2001
US 5764263 A	Lin	06-1998
US 5624484 A	Takahashi	04-1997

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5-7, 9-18, 20-22, 24-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (US 5958121) in view of Takahashi et al. (US 5624484).

Lin discloses the following claim limitations:

As per claims 1 and 16: an ink jet ink including from 0.1 wt% to 6 wt% anionic dye colorant and from 0.5 wt% to 1.0 wt% of an anionic dispersant (column 18, lines 24-43; column 21, lines 11-15 and column 21, lines 46-51); a fixer composition including a

cationic crashing agent that is reactive with a component of the ink jet ink (column 11, lines 13-31).

As per claims 2 and 17: a method and a fluid dispensing system, wherein the dispensing system further includes ink-jet ink printing nozzles for printing the ink-jet ink and fixer printing nozzles for printing the fixer composition, and wherein the anionic dispersant is present in the ink-jet ink at an amount that inhibits crashing from occurring at the ink-jet ink printing nozzles (column 1, lines 13-31 and column 16, lines 51-60).

As per claims 6 and 21: a method and a fluid dispensing system, wherein the ink-jet ink and the fixer composition are present in two separate ink-jet pens (column 11, lines 13-31).

As per claims 9 and 24: a method and a fluid dispensing system, wherein the cationic crashing agent is present in the fixer composition at from 1 wt % to 5 wt % (column 15, lines 11-37).

As per claims 12 and 27: a method and a fluid dispensing system, wherein the crashing agent is selected from the group consisting of cationic polymers, multivalent metal ions or ionic groups, acids, and combinations thereof (column 21, lines 11-37).

As per claim 13 and 28: a method and a fluid dispensing system, wherein the crashing agent is a cationic polymer selected from the group consisting of polyvinylpyridines, polyalkylaminoethyl acrylates, polyalkylaminoethyl methacrylates, poly(vinyl imidazole), polyethyleneimines, polybiguanides, polyguanides, polyvinylamines, polyallylamines, polyacrylamines, polyacrylamides,

polyquaternaryamines, cationic polyurathenes, aminecelluloses, polysacchride amines, and combinations thereof (column 14, lines 46-63).

As per claims 14 and 29: a method and a fluid dispensing system, wherein the crashing agent is a multivalent metal ion provided by a member selected from the group consisting of multivalent metal nitrate salts, EDTA salts, phosphonium halide salts, organic acid salts, chloride salts, and combinations thereof (column 15, lines 15-42).

As per claims 15 and 30: a method and a fluid dispensing system, wherein the crashing agent is an acid selected from the group consisting of succinic acid, glycolic acid, citric acid, nitric acid, hydrochloric acid, phosphoric acid, sulfuric acid, polyacrylic acid, acetic acid, malonic acid, maleic acid, ascorbic acid, glutaric acid, fumaric acid, tartaric acid, lactic acid, nitrous acid, boric acid, carbonic acid, carboxylic acids such as formic acid, chloroacetic acid, dichloroacetic acid, trichloroacetic acid, fluoroacetic acid, trimethylacetic acid, methoxyacetic acid, mercaptoacetic acid, propionic acid, butyric acid, valeric acid, caprioc acid, caprylic acid, capric acid, lauric acid, myristic acid, palmitic acid, stearic acid, oleic acid, rinolic acid, rinoleic acid, cyclohexanecarboxylic acid, phenylacetic acid, benzoic acid, o-toluic acid, m-toluic acid, p-toluic acid, o-chlorobenzoic acid, m-chlorobenzoic acid, p-chlorobenzoic acid, o-bromobenzoic acid, m-bromobenzoic acid, p-bromobenzoic acid, o-nitrobenzoic acid, m-nitrobenzoic acid, p-nitrobenzoic acid, oxalic acid, adipic acid, phthalic acid, isophthalic acid, terephthalic acid, salicylic acid, p-hydrobenzoic acid, anthranilic acid, m-aminobenzoic acid, p-aminobenzoic acid, benzenesulfonic acid, methylbenzenesulfonic acid, ethylbenzenesulfonic acid, dodecylbenzenesulfonic acid, 5-sulfosalicylic acid, 1-

sulfonaphthalene, hexanesulfonic acid, octanesulfonic acid, dodecanesulfonic acid, amino acids such as glycine, alanine, valine, .alpha.-aminobutyric acid, .alpha.-aminobutryic acid, .alpha.-alanine, taurine, serine, .alpha.-amino-n-caprioc acid, leucine, norleucine, phenylalanine, and combinations thereof (column 11, lines 61-column 12, line 30).

Lin does not disclose the following claim limitations:

As per claims 1 and 16: the fluid dispensing system configured for overprinting or underprinting the fixer composition with respect to the ink jet ink.

As per claims 3 and 18: a method and a fluid dispensing system, wherein the ink-jet printing nozzles and the fixer printing nozzles are present on a common nozzle plate.

As per claims 5 and 20: a method and a fluid dispensing system, wherein the ink-jet printing nozzles and the fixer printing nozzles are serviced by a common wiper.

As per claims 7 and 22: a method and a fluid dispensing system, wherein the ink-jet ink and the fixer composition are present in two separate reservoirs of a common ink-jet pen.

As per claim 11 and 26: a method and a fluid dispensing system as in claim 1, wherein the anionic dispersant polymer has a weight average molecular weight from 4,000 Mw to 50,000 Mw.

Takahashi discloses the following claim limitations:

As per claims 1 and 16: the fluid dispensing system configured for overprinting or underprinting the fixer composition with respect to the ink jet ink (column 14, lines 40-64 and column 3, lines 50-61).

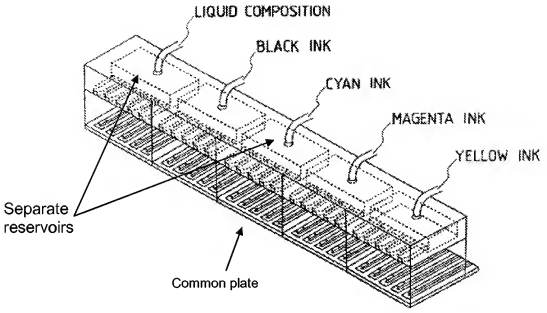
As per claims 2 and 17: a method and a fluid dispensing system, wherein the dispensing system further includes ink-jet ink printing nozzles for printing the ink-jet ink and fixer printing nozzles for printing the fixer composition (figure 8; column 12, lines 44-67), and wherein the anionic dispersant is present in the ink-jet ink at an amount that inhibits crashing from occurring at the ink-jet ink printing nozzles (column 5, lines 33-50).

As per claims 3 and 18: a method and a fluid dispensing system, wherein the ink-jet printing nozzles and the fixer printing nozzles are present on a common nozzle plate (column 14, lines 55-60).

As per claims 5 and 20: a method and a fluid dispensing system, wherein the ink-jet printing nozzles and the fixer printing nozzles are serviced by a common wiper (column 2, line 66- column 3, line 28).

As per claims 6 and 21: a method and a fluid dispensing system, wherein the ink-jet ink and the fixer composition are present in two separate ink-jet pens (column 14, lines 22-56).

As per claims 7 and 22: a method and a fluid dispensing system, wherein the ink-jet ink and the fixer composition are present in two separate reservoirs of a common ink-jet pen (figure 8, illustrated below).



As per claims 9 and 24: a method and a fluid dispensing system, wherein the cationic crashing agent is present in the fixer composition at from 1 wt % to 5 wt % (column 6, lines 55-60).

As per claim 11 and 26: a method and a fluid dispensing system as in claim 1, wherein the anionic dispersant polymer has a weight average molecular weight from 4,000 Mw to 50,000 Mw (column 16, lines 56-60; column 17, lines 42-46).

As per claims 12 and 27: a method and a fluid dispensing system, wherein the crashing agent is selected from the group consisting of cationic polymers, multivalent metal ions or ionic groups, acids, and combinations thereof (column 2, lines 53-56).

As per claim 13 and 28: a method and a fluid dispensing system, wherein the crashing agent is a cationic polymer selected from the group consisting of polyvinylpyridines, polyalkylaminoethyl acrylates, polyalkylaminoethyl methacrylates, poly(vinyl imidazole), polyethyleneimines, polybiguanides, polyguanides, polyvinylamines, polyallylamines, polyacrylamines, polyacrylamides, polyquaternaryamines, cationic polyurathenes, aminecelluloses, polysacchride amines, and combinations thereof (column 2, lines 53-56).

As per claims 14 and 29: a method and a fluid dispensing system, wherein the crashing agent is a multivalent metal ion provided by a member selected from the group consisting of multivalent metal nitrate salts, EDTA salts, phosphonium halide salts, organic acid salts, chloride salts, and combinations thereof (column 5, line 57-column 6, line 9).

As per claims 15 and 30: a method and a fluid dispensing system, wherein the crashing agent is an acid selected from the group consisting of succinic acid, glycolic acid, citric acid, nitric acid, hydrochloric acid, phosphoric acid, sulfuric acid, polyacrylic acid, acetic acid, malonic acid, maleic acid, ascorbic acid, glutaric acid, fumaric acid, tartaric acid, lactic acid, nitrous acid, boric acid, carbonic acid, carboxylic acids such as formic acid, chloroacetic acid, dichloroacetic acid, trichloroacetic acid, fluoroacetic acid, trimethylacetic acid, methoxyacetic acid, mercaptoacetic acid, propionic acid, butyric acid, valeric acid, caprioc acid, caprylic acid, capric acid, lauric acid, myristic acid, palmitic acid, stearic acid, oleic acid, rinolic acid, rinoleic acid, cyclohexanecarboxylic acid, phenylacetic acid, benzoic acid, o-toluic acid, m-toluic acid, p-toluic acid, o-

chlorobenzoic acid, m-chlorobenzoic acid, p-chlorobenzoic acid, o-bromobenzoic acid, m-bromobenzoic acid, p-bromobenzoic acid, o-nitrobenzoic acid, m-nitrobenzoic acid, p-nitrobenzoic acid, oxalic acid, adipic acid, phthalic acid, isophthalic acid, terephthalic acid, salicylic acid, p-hydrobenzoic acid, anthranilic acid, m-aminobenzoic acid, p-aminobenzoic acid, benzenesulfonic acid, methylbenzenesulfonic acid, ethylbenzenesulfonic acid, dodecylbenzenesulfonic acid, 5-sulfosalicylic acid, 1-sulfonaphthalene, hexanesulfonic acid, octanesulfonic acid, dodecanesulfonic acid, amino acids such as glycine, alanine, valine, .alpha.-aminobutyric acid, .alpha.-aminobutryic acid, .alpha.-alanine, taurine, serine, .alpha.-amino-n-caprioc acid, leucine, norleucine, phenylalanine, and combinations thereof (column 6, lines 10-26).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and fluid dispensing system of Lin with the disclosure of Takahashi et al. in order to create a stronger ink and higher quality image. It is well known in the art to both over print and under print fixing solutions.

Claims 4 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (US 5958121) and Takahashi et al. (US 5624484), and further in view of Rutland et al. (US 6328413).

Lin as modified discloses the following claim limitations:

The method and fluid dispensing system of claims 2 and 17

Lin as modified discloses the following claim limitations:

Takahashi et al. as modified does not teach the ink-jet printing nozzles and the fixer printing nozzles are configured in a proximity such that, upon jetting, small amounts of fixer composition aerosol jetted from the fixer printing nozzles contact the ink-jet ink printing nozzles, thereby resulting in the ink-jet printing nozzles being susceptible to cross-contamination by the fixer composition.

Rutland discloses the following claim limitations:

Rutland teaches ink-jet printing nozzles and the fixer printing nozzles are configured in a proximity such that, upon jetting, small amounts of fixer composition aerosol jetted from the fixer printing nozzles contact the ink-jet ink printing nozzles, thereby resulting in the ink-jet printing nozzles being susceptible to cross-contamination by the fixer composition (column 2, line 66- column 3, line 28).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and fluid dispensing system of Lin as modified with the disclosure of Rutland et al. in order to allow for covering larger areas of space when printing.

(10) Response to Argument

Claims 1-3, 5, 7, 9-18, 20-22, and 24-30

Appellant argues that:

"There is no clear teaching of the use of an anionic dye of one weight percent concentration with an anionic dispersing with another weight percent concentration." It is noted in column 21, lines 11-15 that the stabilizing is an anionic agent that disperses

dyes within an ink. In column 21, lines 11-37, it is noted that one stabilizing agent that can be used in the invention is an "anionic dispersant". This section also references dye based inks as being dispersed with a stabilizing agent. It is obvious to one of ordinary skill in the art that when the dye is dispersed, as disclosed in this paragraph, it can be dispersed with any of the listed stabilizing agents, including an anionic dispersant.

"The reference appears to focus on anionic dyes separately from anionic dyes with stabilizing agents therewith." The examiner states that it states in column 18, lines 44-48 that any suitable dye that is compatible with the other ink ingredients can be used". This section goes on to list anionic dyes as one example. It would be obvious that this is referring to the second ink as the first ink contains specifically anionic dyes and the third and fourth inks contain pigments. If an anionic dye can be used as a colorant in the second dye ink, then, as disclosed in column 21, lines 11-15, an anionic dye and an anionic crashing agent can be used together in the same ink.

"Takahashi supports the Appellant's assertion that one skilled in the art would typically not use dispersants with dyes." The examiner notes that the primary reference (Lin) reads on the claim language of the applicant's ink of claims 1 and 16. Lin is modified with Takahashi for the purpose of teaching underprinting and overprinting. It is well known to one of ordinary skill in the art that printers often use both underprinting and overprinting while forming an image.

Claims 4 and 19

Appellant argues that:

"Rutland… does not teach a system with all the claim limitations required by claims 4 and 19. In fact, Rutland more likely teaches away from all the claim limitations." The examiner argues that Rutland discloses multiple means by which to prevent nozzle clogging during inactivity. While Rutland ultimately teaches a different means by which one can reduce the clogging of nozzles, this is due to cross-contamination of inks or fixer and ink, which is not a foreseen problem with the current combination of references. As disclosed in the applicant's previous rejection, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Lin as modified with Rutland in order to allow for covering larger areas of space when printing. Rutland does not teach away from spitting, but rather discloses another method of reducing nozzle clogging. In the field of engineering, there are multiple means by which to solve a problem; one must analyze the costs and benefits of these options. In this case, the problems foreseen in Rutland will not prevent the present usage in the combination of references.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Laura E. Martin
/L. E. M./
Examiner, Art Unit 2853

/Stephen D Meier/
Supervisory Patent Examiner, Art Unit 2853

Conferees:

Stephen D. Meier /S. D. M./

/Brian Sircus/

Brian Sircus, TQAS TC 2800